

Appropriate Assessment Conclusion Statement by Licensing Authority for aquaculture activities in River Barrow and River Nore Special Area of Conservation (SAC) (site code 002162)

This Conclusion Statement outlines how it is proposed to licence and manage aquaculture activities in River Barrow and River Nore SAC in compliance with the EU Birds and Habitats Directives. Aquaculture in these Natura Sites will be licensed in accordance with the standard terms and conditions as set out in the aquaculture licence templates. These are available for inspection on the Department's website at

<http://www.agriculture.gov.ie/fisheries/aquaculture/foreshoremanagement/aquaculturelicensing/>

The licences will also incorporate specific conditions so as to accommodate Natura requirements, as appropriate, in accordance with the principles set out in this document.

An Appropriate Assessment report of aquaculture in River Barrow and River Nore SAC has been prepared by the Marine Institute in relation to the marine habitats on behalf of the Department of Agriculture, Food and the Marine. The Appropriate Assessment (Article 6 (3)) report for aquaculture assessed the potential ecological impacts of aquaculture activities on Natura features in the River Barrow and River Nore SAC. The information upon which the Appropriate Assessment is based is the definitive list of applications and extant licences for aquaculture available at the time of assessment. This information was provided by the Department of Agriculture, Food and the Marine.

Description of aquaculture activities

In the River Barrow & River Nore SAC there are two valid oyster production licences with a further ten new applications. In addition there are five current licences for mussel cultivation with an additional eight applications. The likely interaction between aquaculture activity and conservation features (habitats and species) of the Natura site was considered.

Current oyster cultivation within River Barrow & River Nore SAC is a form of intensive culture with oyster seed cultivated using the bag and trestle method within the intertidal zone, either to half-grown or fully-grown size. The bag and trestle method uses steel table-like structures which rise from the shore to just above knee height on the middle to lower intertidal zone, arrayed in double rows with wide gaps between the paired rows to allow for access.

Bottom mussel cultivation has taken place since the 1970's with the first bottom mussel sites licenced between 2000 and 2002. Contract relaying and harvesting is currently the strategy on

existing fully licenced bottom mussel sites with an option of smaller boats being brought in to assist harvest and sampling. The production cycle in Waterford Harbour can vary from 1 to 2 years.

The SAC

The function of the Appropriate Assessment is to determine if the ongoing and proposed aquaculture activities are consistent with the Conservation Objectives for the site. The National Parks and Wildlife Service (NPWS) provide guidance on interpretation of the Conservation Objectives which are, in effect, management targets for habitats and species in the site. The assessment of activities was informed by this guidance, which is scaled relative to the anticipated sensitivity of the habitats and species to disturbance by the proposed activities.

River Barrow & River Nore SAC (Site code: 002162)

River Barrow & River Nore SAC (Site code: 002162) is a large site that consists of the upstream freshwater stretches of the Barrow and Nore River catchments and the tidal elements and estuary as far downstream as Creadun Head at Waterford Harbour on the south coast of Ireland. The SAC is designated for the marine habitats Estuaries (1130) and Mudflats and sand flats not covered by seawater at low tide (1140) which support a variety of soft sedimentary communities and community complexes. The site is also designated for a variety of coastal habitats, including saltmarshes and sand dunes, heath, scrub and woodland. Designated species include plants, bivalves, gastropods, fish and other habitats including salt meadow, sand dunes and scrub.

Conservation Objectives for River Barrow & River Nore SAC

Conservation Objectives for marine habitats and constituent communities (within River Barrow & River Nore SAC) were identified by NPWS (2012a) and relate primarily to the requirement to maintain habitat distribution, structure and function, as defined by characterizing (dominant) species. For designated species the objective is to maintain various attributes of the populations including population size, habitats quality and the distribution of the species.

Qualifying interests of the SAC

The SAC is designated for the following habitats and species (NPWS 2011a), as listed in Annex I and Annex II of the Habitats Directive:

1. 1130- Estuaries
2. 1140- Mudflats and sandflats not covered by seawater at low tide

3. 1310- *Salicornia* and other annuals colonising mud and sand
4. 1330- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
5. 1410- Mediterranean salt meadows (*Juncetalia maritimi*)
6. 3260 Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation
7. 4030 -European dry heaths
8. 6430- Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels
9. 7220- Petrifying springs with tufa formation (*Cratoneurion*)
10. 91AO- Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles
11. 91EO-Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*)
12. 1421 *Trichomanes speciosum* (Killarney Fern)
13. 1016-*Vertigo moulinsiana* (Desmoulin's Whorl Snail)
14. 1029-*Margaritifera margaritifera* (Freshwater Pearl Mussel)
15. 1990-*Margaritifera durrovensis* (Nore Pearl Mussel)
16. 1092-*Austropotamobius pallipes* (White-clawed Crayfish)
17. 1095-*Petromyzon marinus* (Sea Lamprey)
18. 1096- *Lampetra planeri* (Brook Lamprey)
19. 1099-*Lampetra fluviatilis* (River Lamprey)
20. 1103-*Alosa fallax fallax* (Twaite Shad)
21. 1106-*Salmo salar* (Salmon)
22. 1355-*Lutra lutra* (Otter)

Aquaculture Activity Screening

Habitats 3-16 above were screened out and excluded from further consideration as no spatial overlap or likely interactions with aquaculture activities (existing or proposed) was expected to occur.

Furthermore, four bottom mussel culture applications located south of Creadun Head (proximate to the SAC) are considered non-disturbing to the Qualifying Features of the SAC and were excluded from further analysis. These are sites T4/113A, T4/113B, T4/113C and T4/113D.

Screening of Adjacent SACs for ex-situ effects

In addition to the River Barrow & River Nore SAC there are three other SAC sites proximate to the proposed activities, Tramore Dunes and Backstrand (000671), Hook Head (000764) and the Lower River Suir SAC (002137). The characteristic features of these sites are identified in the Appropriate

Assessment and a preliminary screening carried out on the likely interaction with aquaculture activities based primarily upon the likelihood of spatial overlap. It was deemed that there are no ex-situ effects on Qualifying Features of the Tramore Dune and Backstrand SAC and Hook Head SAC (i.e. all Qualifying Features of these SACs sites were screened out).

In addition, it was deemed that there are no ex-situ effects on the Qualifying Features of the Lower River Suir SAC except for the following designated Qualifying Interests ; *Lampetra planeri* (Brook Lamprey) [1096], *Lampetra fluviatilis* (River Lamprey) [1099], *Alosa fallax fallax* (Twait Shad) [1103], *Salmo salar* (Salmon) [1106]) and *Lutra lutra* (Otter) [1355].

Assessment of the effects of aquaculture production on the conservation objectives for habitat features in the River Barrow & River Nore SAC.

The Appropriate Assessment concluded (based primarily upon the spatial overlap and sensitivity analysis) that current and proposed intertidal oyster aquaculture activities, individually and in combination, do not pose a risk of significant disturbance to the conservation habitats in the River Barrow & River Nore SAC.

Current levels of subtidal (bottom) cultivation of mussels do not pose a significant risk to the Conservation Objectives of marine benthic habitat features for which the SAC is designated. It should be noted, however, that should all applications (renewals and new applications) for mussel cultivation be granted, the risk of persistent disturbance on the Conservation Objectives of the Sand to muddy fine sand community complex within the Qualifying Interest of 1130 Estuaries cannot be discounted.

Oysters

While combined spatial overlap of current and proposed oyster cultivation sites and the constituent community types, identified for the Qualifying Feature habitats of 1130 and 1140, ranges between 3.83% and 26.18% published literature suggests that the presence of trestles is non-disturbing. Consequently, adverse impacts of activities occurring at oyster cultivation sites within the Qualifying Interests of (1130) Estuaries and (1140) of Mudflats and sandflats not covered by seawater at low tide can be discounted.

The access routes used in intertidal areas, presumably by virtue of persistent compaction of the sedimentary habitats, are considered disturbing. The access route for aquaculture sites are confined

to the community type of Sand to muddy fine sand community complex which is an identified constituent community of the Qualifying Interests (1130) Estuaries and (1140) Mudflats and sandflats not covered by seawater at low tide. For the Qualifying Interests 1130 and 1140 the spatial overlap of the access routes with the constituent community type of Sand to muddy fine sand community complex is 0.17% and 0.46% respectively. Given that these values are less than 15% threshold significant adverse impacts of activities on the community type **can be discounted**.

Mussels

Current mussel cultivation overlap is confined to one community type identified within the Qualifying Features of (1140) i.e. Mudflats and sandflats not covered by seawater at low tide (i.e. 10.4 % overlap with Muddy estuarine community complex). Given that these values of spatial overlap with constituent communities are less than the 15% threshold significant adverse impacts of current activities on the constituent community type of the Qualifying Features 1140 **can be discounted**.

Should all applications for mussel cultivation be granted the spatial overlap of cultivation sites in one constituent community (i.e. Sand to muddy fine sand community complex) within the Qualifying Feature (1130) Estuaries will increase from 3.32% to 17.98 % thus exceeding the 15% threshold for significant impact. Based on this level of spatial overlap significant adverse impacts on the community type and Qualifying Feature **cannot be discounted**.

The risk posed by the introduction of seed stock (e.g., ½ grown oysters or mussel seed) from outside of the jurisdiction also cannot be discounted.

Otter (Lutra Lutra).

The River Barrow & River Nore SAC and the adjacent Lower River Suir SAC are designated for the otter (Lutra lutra). Conservation Objectives for the species within the SAC sites have been defined by NPWS and primarily relate to population size and distribution.

The current levels of licenced shellfish culture and applications are considered non-disturbing to otter conservation features in the River Barrow & River Nore SAC and the Lower River Suir SAC.

Atlantic Salmon (Salmo Salar)

The River Barrow & River Nore SAC and Lower River Suir (NPWS 2015) are designated for the Atlantic Salmon (Salmo salar) (NPWS, 2011a; 2015).

Significant declines in sea survival and reduced returns to the coast and rivers of Atlantic salmon in recent decades have been recorded in Ireland. It is acknowledged in the Appropriate Assessment that the Favourable Conservation Status of the Salmon has not been achieved for both the River Nore and River Barrow. However, despite the range of pressures it is concluded that existing and proposed aquaculture activities in the SAC are unlikely to pose any significant risk to the following salmon attributes;

- Distribution (in freshwater)
- Fry abundance (freshwater)
- Population size of spawners (fish will not be impeded or captured by the proposed activity)
- Smolt abundance
- Out migrating smolts will not be impeded or captured by the proposed activity

Water quality (freshwater)

Current and proposed aquaculture activities are likely to be non-disturbing to the Conservation Objective for Atlantic Salmon within the River Barrow & River Nore SAC and the Lower River Suir SAC.

Brook Lamprey (*lampetra planeri*), Sea Lamprey (*petromyzon marinus*), River Lamprey (*lampetra fluviatili*) and Twaite Shad (*alosa fallax fallax*)

For these species the objective is to maintain various attributes of the populations including population size, habitats quality and the distribution of the species. Specific population attributes include

- Extent of river accessible
- Access to spawning
- Availability of juvenile habitat
- Spawning beds
- Juvenile density
- Population structure of juveniles

The main aspect of the intertidal and mussel culture activities that could potentially impact the designated species of Sea Lamprey, River Lamprey, Brook Lamprey and Twaite Shad is the physical presence of trestles that may impede migration of fish and the accidental capture/ injury of fish when harvesting/ relaying mussels. The Appropriate Assessment concludes that, given the levels of

existing and those levels proposed, intertidal oyster and subtidal mussel cultivation activities in the SAC do not pose significant risk to the above listed population attributes for designated Lamprey species and Twaite Shad.

In-Combination Effects Of Aquaculture, Fisheries And Other Activities

Pressures resulting from aquaculture activities are primarily localised compaction of sediment along access routes. Any in-combination effects with aquaculture activities are considered to be minimal or negligible given that the pressure resulting from point discharge locations such as urban wastewater treatment and/or combined sewer outfalls would likely impact on physic-chemical parameters in the water column.

Cumulative Impacts

Potential disturbing activities include pot fishing for whelk, hydraulic dredge fishing for cockles and razor clams. The SAC also supports a mid-water trawl fishery for herring and sprat. While this fishery is unlikely to interact with marine benthic habitats of the SAC and aquaculture activities, interaction with designated species of the SAC may occur.

There are no known applications for a fishery, a Classified Production Area, or proposed fishery plans for the area. In addition, the high intertidal nature of the sites suggests that hydraulic dredging would be impractical. Finally, it is likely that 'wild' fisheries (i.e. hydraulic dredging for cockles, razor clams and surf clams) activities will not occur in the oyster and mussel aquaculture plots if they are actively maintained. Consequently, in-combination effects of dredge fishing with aquaculture activities on designated habitats (and constituent community types) can be discounted.

Management/Mitigation Measures

Taking account of the recommendations of the Appropriate Assessment, as well as additional technical/scientific observations, the following measures are being taken in relation to licencing aquaculture in this SAC:

- *A Licence condition requiring strict adherence to the identified access routes over intertidal habitat in order to minimise habitat disturbance;*
- *A Licence condition requiring full implementation of the measures set out in the draft Marine Aquaculture Code of Practice prepared by Invasive Species Ireland;*

- *The use of updated Aquaculture and Foreshore Licences containing terms and conditions which reflect the enhanced environmental protection now required under EU and National law.*

In relation to mussel cultivation, when applications are taken into consideration in combination with licenced activities, thresholds are exceeded for one constituent community (i.e. Sand to muddy fine sand community complex) for Qualifying Feature 1130 Estuaries. Taking account of this it is proposed to rationalise the mussel areas down to reduce the overlap to less than 15% of the referenced habitat.

Conclusion

The Minister is satisfied that from a birds/habitats perspective, given the conclusions and recommendations of the Appropriate Assessment process, along with implementation of measures that will mitigate certain pressures on Natura features, the proposed licensed activities are not likely to have a significant effect on the integrity of River Barrow and River Nore SAC.).